Coccidioides immitis presenting with acute hydropneumothorax in an immunocompetent patient from South Texas.

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Introduction:

Coccidioidomycosis is a disease caused by the dimorphic fungi Coccidioides immitis and Coccidioides posadasii. Southern California and Southern Arizona have the highest reported rates of "Valley fever", however coccidioides is also found in parts of West Texas and along the Rio Grande River. Incidence tends to decrease in the eastern part of Texas close to the Gulf of Mexico likely because of increased humidity. Coccidioides incidence also vary with season, winds severity, dust storms and wildfires.

We present a case of a 27-year-old male with a history of e-cigarette smoking who presented to our institution with a 3-week history of shortness of breath and pleuritic chest pain and acute hypoxic respiratory failure. He initially presented to another institution where he was diagnosed with a left sided pneumothorax and a chest tube was placed. After the procedure, he described feeling immediate relief and left against medical advice before evaluation was completed. The chest tube was removed six days later in the outpatient setting, but his symptoms rapidly recurred, which prompted the patient to pursue a higher level of care. Chest x-ray on admission revealed a large loculated left pneumothorax with atelectasis and infiltrates. Furthermore, the patient reported that 2 years prior to presentation, he worked as an electrical lineman in Central California. At the time, he described having a painful nodular rash on his lower extremities with spontaneous resolution. Since his return from California, he had an insidious and intermittent dry cough, which he had mostly ignored. A CT of the chest confirmed a large left hydropneumothorax with atelectasis of the entire left lung and his initial blood work revealed eosinophilia. He had a chest tube placed, and cardiothoracic surgery performed VATS procedure with left lung decortication and pleurodesis. During the procedure, a three-centimeter abscess in the left upper lobe was found and samples were sent for pathology and microbiological evaluation. During the hospitalization, coccidioides antibodies by complement fixation were positive with a titer of 1:16. Cultures from lung tissue specimen grew mold within a week, which was compatible with coccidioides readily growth pattern in culture media at 35°. Given risk of exposure to the laboratory personnel our team communicated our diagnostic suspicion to the laboratory. Postoperative serial chest x-rays showed re-expansion of the left lung. Eventually, chest tube was removed, and the patient was discharged on Voriconazole pending final identification of the mold. After the patient was discharged, culture results were finalized isolating *Coccidioides immitis*. The results were communicated to the patient and the outpatient care team; and he was switched to fluconazole therapy.

Coccidioidomycosis is more commonly a subclinical and self-limited disease in up to sixty percent of cases. Acute pneumonia (Valley fever), extra thoracic disseminated infection and complications occur more frequently in immunocompromised hosts. With more frequent wildfires in the Western United States, Coccidiomycosis has increased by almost sixfold in the last two decades in endemic areas. We present a case of severe coccidiomycosis in an immunocompetent host who lived in central California for two months, 2 years prior to manifesting severe respiratory compromise.

Clinicians should be able to recognize differential diagnoses for cavitary-like lung lesions, paying close attention to social history and CDC epidemiology data.